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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/730,271	12/09/2003	Hiroki Furukawa	0074/037001	2560

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SMITH PATENT OFFICE
1901 PENNSYLVANIA AVENUE N W
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WASHINGTON, DC 20006

EXAMINER

FLORES, LEON

ART UNIT	PAPER NUMBER
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2611

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/08/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/730,271	FURUKAWA, HIROKI	
	Examiner	Art Unit	
	Leon Flores	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/9/2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20 and 21 is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☐ Claim(s) 2-19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/9/2003</u> <u>5/16/06</u> <u>7/13/06</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities: In paragraph 40, line 9 the limitation "vale X_j " should be rewritten as "value X_j ".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (US Patent 7,006,577 B2) in view of Nomura (US Patent 6,731,702 B1).

Re claim 1, Kim discloses a null symbol detection device used for receivers for a digital broadcasting system which repeatedly transmits a null symbol with smaller

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transmission power than those of other symbols during a fixed period, which has at least one transmission mode, where at least one of a null symbol repetition period and a null symbol width is different depending on at least one transmission mode, and in which the longer said null symbol repetition period becomes, the wider said null symbol width becomes, said null symbol detection device comprising: an amplitude detector operable for detecting an envelope of at least one of an intermediate frequency signal and a baseband signal (In Kim, see fig. 4: 230 & col. 5, line 11); a synchronous addition buffer group having at least one synchronous addition buffer for synchronously adding data obtained by sampling an output of said amplitude detector at a fixed sample period during said null symbol repetition period corresponding to said at least one of transmission modes to be received (In Kim, see fig. 4: 252 & col. 5, lines 31-35); a transmission mode determination processor operable for performing a moving average operation upon all synchronous addition data rows stored in said at least one of synchronous addition buffer of said synchronous addition buffer group, and for determining a transmission mode by detecting, with respect to a transmission mode to be received, a minimum value of the moving average operation and an address of said at least one synchronous addition buffer providing the minimum value (In Kim, see fig. 4: elements 254, 256 & 270, see col. 6, lines 24-27); and a null position detector operable for detecting, in accordance with a transmission mode determined in said transmission mode determination processor, a null symbol position from the address providing the minimum value of the moving average operation (In Kim, see fig. 4: 256 & col. 5, lines 46-50 & col. 6, lines 30-38).

But the reference of Kim fails to specifically disclose that a null position detector operable for generating a synchronous pulse at a start point of the null symbol position. However, Nomura does. (See abstract & col. 9, lines 47-53, & col. 10, line 66 – col. 11, line 4.) Nomura discloses a null symbol position detection receiver for detecting a null symbol from a broadcast signal containing it in any broadcast signal receiving environment.

Therefore, taking the combined teachings of Kim and Nomura as a whole, it would have been obvious to one of ordinary skill in the art to have included this step right after obtaining the null symbol position into the system of Kim, and as taught by Nomura, for the benefit of obtaining the frequency offset of the received signal, thereby quickly and accurately correcting this frequency offset. (In Nomura, see col. 11, lines 1-3)

Allowable Subject Matter

Claims 2 & 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter. The prior art of record fail to anticipate or render obvious the following limitations as claimed:

In claim 2, the further limitations of "wherein said transmission mode determination processor includes: a moving average processing unit for performing a moving average operation in which, with respect to all of the synchronous addition data rows stored in at least one synchronous addition buffer of said synchronous addition buffer group, an average value of adjacent m sampling values is calculated and the sampling point is successively moved, and for detecting the minimum value of the moving average operation and the address of said at least one synchronous addition buffer providing the minimum value for the transmission mode to be received; a correction processing unit for correcting the minimum value of the moving average operation for each of the transmission modes performed in said moving average processing unit in accordance with a synchronous addition number and a time width of the moving average operation; and a transmission mode determining unit for comparing corrected minimum values of the moving average operation for the respective transmission modes to determine the transmission mode to be received"; Claims 3-6, 11, 13, 15 & 18 depend on claim 2.

In claim 7, the further limitations of "wherein said transmission mode determination processor includes: a moving average processing unit for performing a moving average operation in which, with respect to all of the synchronous addition data rows stored in said at least one of synchronous addition buffer of said synchronous addition buffer group, an average value of adjacent m sampling values is calculated and the sampling point is successively moved, and for detecting the minimum value of the

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moving average operation and the address of said at least one of synchronous addition buffer providing the minimum value for the transmission mode to be received; a threshold calculating unit for calculating thresholds for detecting a transmission mode by said synchronous addition data stored in said synchronous at least one addition buffer; and a transmission mode determining unit for comparing the minimum value of the moving average operation calculated in said moving average processing unit with a threshold calculated in said threshold calculating unit to determine the transmission mode to be received"; Claims 8-10, 12, 14, 16-17 & 19 depend on claim 7.

Claims 20 & 21 are allowed.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leon Flores whose telephone number is 571-270-1201. The examiner can normally be reached on Mon-Fri 7-5pm Alternate Fridays off.

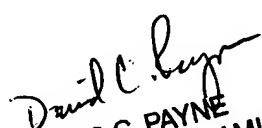
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on 571-272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LF

February 1, 2007


DAVID C. PAYNE
PRIMARY PATENT EXAMINER